

The Expanding World of Nanofabrication – *an update from NanoFabrication Kingston*

August, 2021

Good day,

You are receiving this important update as a user of NFK, as a supervisor of a user, or as someone who requested to receive these updates.

Building ownership at Innovation Park

The building that hosts NFK at 945 Princess St. (formerly known as Innovation Park) has recently been sold to Modern Niagara Building Services. This sale will likely involve changes to how the building is operated, from maintenance and cleaning to security and reception. There is also hope that substantial investments will be made to improve the building's function and aesthetics. Relevant details for NFK users will be passed on by these email updates as they come.

Equipment news

Raith Pioneer Electron Beam Lithography System:

The Pioneer software that operates the EBL system has been set up for individual users to log in with their own user profiles. You will be shown how to log in properly the next time you schedule use of the tool for EBL or SEM.

IMP SF-100 XPress Maskless Photolithography System:

The lamp has been changed on the maskless photolithography system, so processes will now have slightly lower exposure times than they did before. If you have not used a process since May 3, 2021, please ask me what exposure time you should use.

Recirculating water chiller:

One of our water chillers was sent for repair in May, requiring users to manually switch chiller sources when using the physical vapour deposition equipment. This was fixed on July 6 and everything has been back to normal since.

New processes

Photomask fabrication

NFK can now offer photomask fabrication as a service. One of the processes developed this summer by SWEP student Maya Stricker, we can use the maskless system to pattern a 6" soda lime photomask in chrome down to 5 μm resolution that can be used with our mask aligner. This approach is especially useful for researchers who repeatedly use the same design – cost analysis

shows that it becomes cost effective, on average, if you pattern the same design more than twice.

Anisotropic RIE of silicon

In another process developed this summer, Maya demonstrated reactive ion etching of silicon with CF_4/O_2 combinations that yield highly anisotropic etch profiles. If you are interested in this process, we can provide full details once the user guide is finalized.

New materials for deposition

NFK now has processes to deposit copper and silver by magnetron sputtering and cobalt by e-beam evaporation. Details are available upon request.

New equipment: vacuum sealer

NFK has recently installed a vacuum sealer. This tool is intended to seal samples in plastic wrap under vacuum to help preserve them from degradation in storage or during transport. If you want to use this new functionality, ask me for training.

Job postings

I occasionally hear about job opportunities in the nanotechnology field, mostly at university micro/nanofabrication facilities. If you would like me to send you links for more information, please let me know.

COVID-19 update

NFK continues to be open to support your research throughout the government-restricted period. If you already have authorization for on-site research, you are welcome to email me to schedule time in the lab or arrange for a service project.

We want to hear from you

NFK is always interested in hearing about your research. Has your work at NFK led to a publication or conference presentation? If so, please let us know. We are constantly updating our [list](#) of peer-reviewed journal articles showcasing work done at NFK. We also welcome feedback about our tools and services. Feel free to forward your questions, concerns, complaints, or praise to [me](#), and I will do my best to respond.

See you at the lab!

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